

WUQIONG ZHAO

Undergraduate Student of Southeast University

E-Mail: wqzhao@seu.edu.cn

Website: <https://wqzhao.org>



Summary

I am at Southeast University. I am the top-ranked honors student pursuing the bachelor's degree in **communications engineering** at Chien-Shiung Wu College, Southeast University (SEU). My expertise lies in EE, with a primary focus on *baseband signal processing* for *wireless communications* and *FPGA implementation*. My interests extend beyond my core field, encompassing *systems and networking*, as well as *machine learning* within the realm of CS. In addition to having published several papers, I also contribute to the academic community by serving as a reviewer and sharing knowledge as a teaching assistant. Beyond academia, I have a deep appreciation for open-source software and the collaborative spirit it fosters.

Education

- ▶ **Southeast University** (Chien-Shiung Wu College), Nanjing, China

Sep. 2020 — Now

Chien-Shiung Wu College is the Honors college of Southeast University primarily in engineering.

Internship

- ▶ **University of California, San Diego** (Electrical and Computer Engineering), La Jolla, CA, U.S.A.

Jun. 2023 — Sep. 2023

Working at Prof. [Xinyu Zhang](#)'s lab, focusing on *wireless sensing*, *networking*, and *computing*.

Journal Papers

- [J1] W. Zhao*, C. Li*, Z. Ji, Z. Guo, X. Chen, Y. You, X. You, Y. Huang, and C. Zhang, “**Flexible High-Level Synthesis Library for Linear Transformations**,” *IEEE Trans. Circuits Syst. II*, 2023, accepted. [[PDF](#)] [[GitHub](#)] [[website](#)]
- [J2] Y. You*, W. Zhao*, L. Zhang, X. You, and C. Zhang, “**Beam Pattern and Reflection Pattern Design for Channel Estimation in RIS-Assisted Mmwave MIMO Systems**,” *IEEE Trans. Veh. Technol.*, 2023, early access. [[IEEE](#)] [[PDF](#)]
- [J3] W. Zhao*, Y. You*, L. Zhang, X. You, and C. Zhang, “**OMPL-SBL Algorithm for Intelligent Reflecting Surface-Aided mmWave Channel Estimation**,” *IEEE Trans. Veh. Technol.*, vol. 72, no. 11, pp. 15121–15126, Nov. 2023. [[IEEE](#)] [[PDF](#)]

*: co-primary authors.

Conference Papers/Presentations

- [C1] W. Zhao, C. Li, Z. Ji, Y. You, X. You, C. Zhang, “**Automatic Timing-Driven Top-Level Hardware Design for Digital Signal Processing**,” in *Proc. IEEE Int. Conf. ASIC (ASICON)*, Oct. 2023. [[IEEE](#)] [[PDF](#)]
- [C2] X. Wang, Z. Wang, X. Jiang, W. Zhao, Y. Xue, Y. Huang, J. Wu, M. Ding, and C. Zhang, “**Bionic Manipulator System Controlled by Sensor Gloves**,” in *Proc. IEEE Int. Symp. Circuits Syst. (ISCAS)*, Jun. 2022, champion of student design competition in IEEE Region 10. [[video demo](#)] [[manual](#)]

Selected Course Projects and Works

1. **C++ Programming**: Fractal Designer (Fractal Video Making GUI App in C++) [[GitHub](#)] Feb. 2021
2. **Physics**: Mechanics of Arch (Analysis and Simulation with Mathematica) [[GitHub](#)] May 2021
3. **Physics**: Dice Simulation (Simulator Based on ReactPhysics3D in C++) (**1st place, 10 stars on GitHub**) [[GitHub](#)] Dec. 2021
4. **Convex Optimization**: Water Filling (Command Line App with Plotting Support in C++) [[GitHub](#)] [[report](#)] Jan. 2022
5. **Digital Design and Computer Architecture**: ARM Lite (Verilog Implementation of Pipelined CPU with Hazard Detection and Forwarding) (**9 stars on GitHub**) [[GitHub](#)] [[report](#)] Jan. 2022

6. **Machine Learning:** seu-ml-assign \LaTeX Template (20 stars on GitHub) [website ↗] [CTAN ↗] [GitHub ↗] Mar. 2022
7. **Machine Learning:** Joint Channel Estimation and Beamforming for RIS-assisted Millimeter Wave MIMO Systems via Deep Learning (maximum extra credit) Jun. 2022
8. **OFDM Seminar:** Efficient Wideband Channel Estimation for MIMO OFDM Systems [website ↗] [GitHub ↗] Aug. 2022
9. **Electronic Design:** Digital Frequency Meter Design With FPGA Assisted by High Level Synthesis [report ↗] Sep. 2022
10. **Digital Signal Processing:** ECG Signal Recovery With FIR and Compressed Sensing Via Block SBL Dec. 2022
11. **Wireless Communications Seminar:** On Compressed Channel Estimation for RIS-assisted Millimeter Wave MIMO Systems Dec. 2022
12. **RF Circuit Modeling and CAD Design:** Digital Predistortion of Power Amplifiers With Deep Reinforcement Learning Aided Compressed Sensing (best project award) May 2023
13. **VLSI Design:** NGSPICE Simulation of CMOS Circuits (6 stars on GitHub) [website ↗] [GitHub ↗] [report ↗] Jun. 2023
14. **Software-Defined Radio:** Dual-Mode PSK Transceiver on SDR With FPGA [website ↗] [GitHub ↗] [report ↗] Jan. 2024

Services

- ▶ **Reviewer** for 2023 *Proc. IEEE Int. Symp. Circuits Syst. (ISCAS)* Dec. 2022
- ▶ **Teaching Assistant** of Advanced Electromagnetic Fields & Waves Feb. 2023 — Jun. 2023
- ▶ **Reviewer** for *IEEE Trans. Circuits Syst. II* Mar. 2023 — Now

Skills

- ▶ **Programming:** C++, MATLAB, Python, Verilog, \LaTeX .

Supervisor

- ▶ Prof. Chuan Zhang (Southeast University, China)